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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CADUGAN, ERICA E

ART UNIT

PAPER NUMBER

3722

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/724,041	LEIENDECKER, MARTIN	
	Examiner	Art Unit	
	Erica E. Cadugan	3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>07/06/2006</u> |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-3, 6-7, 9-10, and 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 6,352,496 to Oldani.

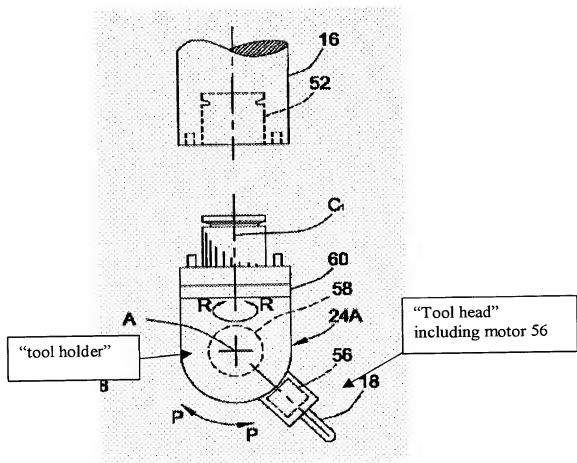
Examiner notes that this art is currently applicable under 35 USC 102(b) because no certified translation of the foreign priority papers has been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15. Examiner also notes that even if such a certified translation was filed, that the Oldani reference would still be available as prior art under either of 35 USC 102(a) or (e).

Oldani teaches a tool holder (see Figure 3) having a free end and defining a “rotational” or “pivot” axis C_1 about which the tool holder holding milling-type cutting tool 18 can be rotated or “pivoted” via motor 60. Additionally, the cutting tool 18 is mounted so as to be driven in rotation about its longitudinal central axis, which constitutes the claimed “drive axis”, via motor 56.

Note also that motor 58 drives the cutting tool in rotation about axis A, such that the drive axis or central longitudinal axis of the cutting tool 18 can be positioned orthogonally to the rotational axis C_1 . See Figure 3, and also see column 3, lines 33-53. Additionally, note that the tool holder and cutting tool can be moved in a direction (such as in the direction of the Y axis as viewed in Figure 1) transverse to the rotational axis C_1 (see also col. 3, lines 24-32, for example). Note also that the rotation or pivoting movement about the axis C_1 , although this is not presently

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claimed, can occur during machining so that complex parts can be machined (col. 8, lines 2-4, for example).



Re claim 2, the milling cutter is considered to be a “face milling cutter” in that it can function to mill a “face” of a workpiece (see at least Figure 11, for example).

Re claim 3, see at least Figure 12.

Re claim 6, note that motor 56 is explicitly described as an electric motor (see col. 3, lines 38-40).

Re claims 7 and 13, for example, note that at least the motor 56 in combination with whatever structure must inherently be present to hold the tool bit 18 form part of a “tool head”

that is “connectable” to the “tool holder” (noting that the “tool holder” as claimed can be considered to be at least the member shown in the reproduction of a portion of Figure 3 above).

Re claims 9 and 10, insofar as the element 6 shown in Figure 5 of the present invention is considered to be a “spindle”, at least the upper portion of the labeled “tool holder” is considered to be a “drive spindle”, as broadly claimed.

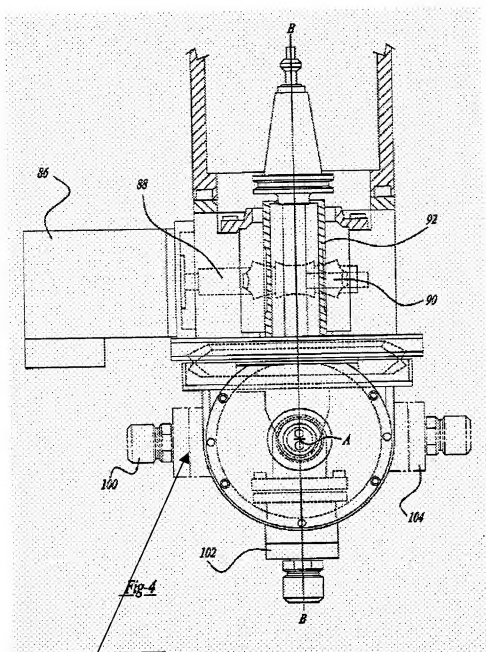
It is noted that via the capability of the tool of Oldani to be moved in the various directions described previously and about the various axes described previously, Oldani’s device is considered to be capable of forming a control window in whatever workpiece is desired, including in the claimed “two-stroke internal combustion engine”, and also to be capable of performing an operation to “expand” such a control window as set forth in claim 12.

3. Claims 1-3, 7, 9-10, 12 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,996,329 to Cardenas.

Cardenas teaches a multi-axis machining head including a “tool holder” (including at least member 22) that has a tool mounting portion 44 for mounting a milling tool 18 located at a free end thereof. The “tool holder” (including at least element 22) is rotatable about a vertical “rotational axis” B via motor 86 (see Figures 3-4 and col. 4, lines 5-11, for example). Additionally, the cutting tool 18 is rotatable about axis A via motor 48 (see Figures 3-4 and col. 3, lines 10-14, for example), which is orthogonal to the vertical rotational axis B. Note that this rotation about axis A provides at least positions 100 and 104 wherein the central longitudinal rotational axis of the cutting tool bit 18 is orthogonal to the rotational axis B. Note also that Cardenas explicitly teaches that the tool is moved in X, Y, and Z directions (shown in Figures 1-2, see also col. 4, lines 16-24, for example), and thus, the tool can be moved in a direction

“transversely” to the rotational axis B. Also note that the rotation or pivoting movement about the axis B, although this is not presently claimed, can occur during machining (see col. 4, lines 16-24, for example).

Re claim 7, for example, see the reproduction of Figure 4 below.



“tool head”, for example

Re claim 2, the milling cutter is considered to be a “face milling cutter” in that it can function to mill a “face” of a workpiece (see at least Figure 2, for example). Re claim 3, there must inherently be peripheral cutting edges to be able to cut in the X and Y directions.

Re claims 9 and 10, insofar as the element 6 shown in Figure 5 of the present invention is considered to be a “spindle”, at least the upper portion of the rotating “tool holder” (the tool holder including at least 22) is considered to be a “drive spindle”, as broadly claimed.

It is noted that via the capability of the tool of Cardenas to be moved in the various directions described previously and about the various axes described previously, Cardenas’ device is considered to be capable of forming a control window in whatever workpiece is desired, including in the claimed “two-stroke internal combustion engine”, and also to be capable of performing an operation to “expand” such a control window as set forth in claim 12.

Claim Rejections - 35 USC § 103

4. Claims 4-5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oldani as applied to claim 1 above, and further in view of the teachings of U.S. Pat. No. 5,697,739 to Lewis et al., for example.

Oldani teaches all aspects of the claimed invention as set forth above, and while Oldani does teach that the motor 56 can be electric, Oldani does not explicitly teach that it could alternatively be pneumatic or hydraulic.

However, Lewis et al. also teaches an angularly adjustable motorized cutting attachment (see Figure 4) wherein cutting tool 48 is rotated about its longitudinal axis by motor 45. Lewis explicitly teaches that the motor can be any of electric, hydraulic, or pneumatic (see col. 3, lines 15-20, for example), thus illustrating the art-accepted interchangeability of such motors.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized either an pneumatic or hydraulic motor (as taught by Lewis) to rotate the cutting tool taught by Oldani, depending on the choice of the end user, likely based on factors such as the availability of one power source over the other, or the cost of one power source over the other, for example.

5. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cardenas as applied to claim 1 above, and further in view of the teachings of U.S. Pat. No. 5,697,739 to Lewis et al., for example.

Cardenas teaches all aspects of the claimed invention as set forth above. However, Cardenas is silent as to the type of power used to drive the cutting tool 18, and thus does not explicitly teach the electric, pneumatic, or hydraulic drives.

However, Lewis et al. also teaches an angularly adjustable motorized cutting attachment (see Figure 4) wherein cutting tool 48 is rotated about its longitudinal axis by motor 45. Lewis explicitly teaches that the motor can be any of electric, hydraulic, or pneumatic (see col. 3, lines 15-20, for example), thus illustrating the art-accepted interchangeability of such power sources.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized any of electric, pneumatic, or hydraulic power sources (as taught by Lewis) to rotate the cutting tool taught by Cardenas, depending on the choice of the end user, likely based on factors such as the availability of one power source over the other, or the cost of one power source over the other, for example.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-60-148657 (hereinafter '657) in view of either one of U.S. Pat. No. 6,352,496 to Oldani or U.S. Pat. No. 5,996,329 to Cardenas.

'657 teaches a method for producing a cylinder for a two-cycle engine, wherein ports or "windows" 2, 3, 4 are opened by a generic "boring" operation (see Figures 1, 2, 4, and the abstract, for example).

'657 doesn't explicitly describe the machine or tool used for performing the boring operation, and thus does not explicitly teach the tool holder structure set forth in claim 11.

However, re Oldani, Oldani teaches all aspects of the claimed tool holder and cutting tool, etc., as set forth above.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the specific apparatus capable of performing a boring or windowing operation as taught by Oldani for the generic "boring" device taught by '657 for the purpose of providing a cutting device that is capable of "precise dimensional control" as taught by Oldani (see at least col. 8, lines 2-6, for example).

Alternatively, re Cardenas, Cardenas teaches all aspects of the claimed tool holder and cutting tool, etc., as set forth above.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the specific apparatus capable of performing a boring or windowing operation as taught by Cardenas for the generic "boring" device taught by '657 for the purpose of providing a cutting device that "occupies a small amount of space and that is able

to machine a work piece in multiple directions along multiple surfaces without the need of refixturing” as taught by Cardenas (see col. 1, lines 10-19, for example)

Response to Arguments

7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Examiner will address any arguments to the extent that they are still applicable.

8. In the response filed February 17, 2006, on page 12 thereof, Applicant made a number of remarks regarding the Lewis reference (U.S. Pat. No. 5,697,739), and specifically, Applicant states that an adjustment of the alignment of the tool head “during operation” and “a pivot movement of the entire tool head about the spindle axis is not possible in Lewis et al.”. Examiner would like to point out that whether or not Examiner agrees that such adjustment of the tool about the vertical spindle axis is “possible” during operation, there is no limitation in any claim relating to the adjustment about the rotational axis being “during operation”. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Additionally, in the interest of expediting prosecution, Examiner has uncovered and applied references which also teach the feature argued by Applicant about the adjustment of the tool being possible during operation, as set forth in detail above.

Additionally, in the supplemental amendment filed April 24, 2006, Applicant made a few assertions about the teachings of the Cardenas reference, which reference is now (but had not been previously) being applied to the claims, as set forth in detail above. Many of Applicants' assertions will be addressed by reviewing the above rejections based on the Cardenas reference.

Additionally, Applicant has asserted that “Cardenas provides no suggestion to arrange the tool at a fixed angle on the free end of the tool holder”.


Firstly, Examiner notes that no “fixed angle” is set forth in the claims. Again, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, Examiner notes that the tool holder taught by Cardenas is capable of machining a workpiece with the tool holder held with the drive axis (horizontally) at a right angle to the vertical rotation axis described in the above rejection (see Figure 4, the positions at at least 100 and 104). If the device taught by Cardenas was not capable of somehow “fixing” the angle, precision workpieces could not be produced, noting that the high machining forces generated when the tool bit came in contact with the workpiece while the tool holder was in such position (100 or 104, for example) would cause the tool holder to undesirably move if the tool holder wasn’t “fixed”. Also note that gravity would also cause the holder to fall back into position 102 if the holder wasn’t somehow “fixed” in the position at 100 and 104.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E. Cadugan whose telephone number is (571) 272-4474. The examiner can normally be reached on M-F, 6:30 a.m. to 4:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Monica S. Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erica E Cadogan
Primary Examiner
Art Unit 3722

eec
July 6, 2006